

REQUIREMENTS:

Dimensions and configurations: See figure 1 and table I.

Enclosure design: 4 (resilient). All entrances to the switch cavity except through the actuator bushing shall be sealed by fusion of glass-to-metal, metal-to-metal, or ceramic-to-metal and the lead wires shall be potted to provide stress relief.

Temperature characteristic: 1 (-55°C to +85°C).

Shock type: M (100 g's).

Sinusoidal vibration grade: 2 (10 to 2,000 Hz).

Finish: Switch housing shall be processed to resist corrosion.

Maximum weight:

MS21321-1: .45 pound.

MS21321-2: .80 pound.

Operating characteristics: ± 20 percent variation from specified values acceptable after test.

Actuating force: 9 ± 3 pounds.

Overtravel force: 30 pounds maximum.

Release force: 4 pounds minimum.

Pretravel: .040 inch (1.01 mm) maximum.

Movement differential: .020 inch (0.50 mm) maximum.

Overtravel: .250 inch (6.35 mm) minimum.

Coincidence of operating and releasing points: All poles shall transfer within .010 inch (0.25 mm) of plunger travel.

Strength of actuating means: 35 pounds.

Contact resistance: Not applicable.

Insulation resistance: 100 megohms.

Terminal strength: 5 pounds.

Dielectric withstanding voltage:

At atmospheric pressure: 1,000 V rms.

At reduced barometric pressure: 50,000 feet; 400 V rms.

Mechanical endurance: 25,000 cycles.

Electrical endurance: 25,000 cycles.

Electrical ratings: See table II.

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Fluid resistance: Except for the cut end of the lead wire, switches shall be submerged in each of the following fluids for 2 minutes to 2 minutes 30 seconds, which shall consist of one cycle (one cycle is 10 minutes to 12 minutes 30 seconds total). Each switch shall be subjected to three cycles.

- a. Turbine fuel (MIL-DTL-5624).
- b. Hydraulic fluid (SAE AS1241A).
- c. Coolanol 1/ (MIL-PRF-87252).
- d. Ethylene glycol (ASTM-E-1119-92).
- e. Lubricating oil (MIL-PRF-7808).

After each immersion, the excess fluid shall be blown off the external surfaces of the switch with an air jet. Following the third cycle, the switch shall be subjected to and shall meet the requirements for dielectric withstanding voltage, insulation resistance, operating characteristics, seal tests, and marking visibility.

Marking: The circuit schematic shall be marked on the switch case.

PIN: See table I.

Qualification inspection:

Group submission: See table III.

Group A inspection:

Seal test: Only watertight test shall be performed.

TABLE I. Part or Identifying Number (PIN) and characteristics.

PIN	A diameter maximum	B maximum	Lead wires, number required
MS21321-1	.720 (18.29)	.980 (24.89)	6
MS21321-2	1.031 (26.19)	1.200 (30.48)	12

TABLE II. Electrical ratings.

Load	Sea level 28 V dc	50,000 feet 28 V dc
	(Amperes)	(Amperes)
Resistive	7	7
Inductive	4	2.5
Motor	4	4 <u>1</u> /

1/ Application information only.

1/ Monsanto Company registered trademark.

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TABLE III. Qualification inspection (group submission).

Examination or test	Samples	Extent of Approval
Qualification inspection table of MIL-PRF-8805	MS21321-2 (24 units)	All
Visual and mechanical examination Operating characteristics	MS21321-1 (2 units)	

Custodians:

Air Force - 11
Army - CR
DLA - CC
Navy - EC

Preparing activity:

DLA - CC

(Project 5930-1691-16)

Review activities:

Air Force - 19, 99
Army - AR, AV, MI
Navy - AS, MC, OS, SH